

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,119,903 B1
APPLICATION NO. : 10/692704
DATED : October 10, 2006
INVENTOR(S) : Brian B. Jones

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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE SPECIFICATION:

Column 6, Line 55: remove "(i.e.," after "integrand"

Column 10, line 20, replace: " $\rho_{spec}^2 = \rho_0^2 - 2\rho_0 z_0 \cos\psi_0 \tan\theta_{spec} + z_0^2 \tan^2 \theta_{spec}$."
with: $-\rho_{spec}^2 = \rho_0^2 - 2\rho_0 z_0 \cos\psi_0 \tan\theta_{spec} + z_0^2 \tan^2 \theta_{spec}$ --

Column 10, line 22, replace: " $0 \leq r \leq R$ " with $-0 < r \leq R$ --

Column 10, line 23, replace: " $0 < \phi \leq 2\pi$." with $-0 < \phi \leq 2\pi$ --

Column 10, line 49, replace: " $\rho^2 = \rho_{spec}^2 + r^2 + \rho_{spec} r \cos\psi_{spec} \cos\phi + \rho_{spec} \sin\psi_{spec} r \sin\phi$."

with: $-\rho^2 = \rho_{spec}^2 + r^2 + \rho_{spec} r \cos\psi_{spec} \cos\phi + \rho_{spec} \sin\psi_{spec} r \sin\phi$ --

Column 10, line 52, replace: " $\rho \leq R$ " with $-\rho \leq R$ --

Column 10, line 55, replace: " $\frac{R^2 - \rho_{spec}^2 - r^2}{\rho_{spec}^r} \geq \cos\psi_{spec} \cos\phi + \sin\psi_{spec} \sin\phi$."

with: $-\frac{R^2 - \rho_{spec}^2 - r^2}{\rho_{spec}^r} \geq \cos\psi_{spec} \cos\phi + \sin\psi_{spec} \sin\phi$ --

Column 10, line 59, delete equation: " $\geq \cos\psi_{spec} \cos\phi + \sin\psi_{spec} \sin\phi$."

Column 11, line 5, replace: " $\frac{R^2 - \rho_{spec}^2 - r^2}{\rho_{spec}^r} \geq \cos\psi_{spec} \cos\phi + \sin\psi_{spec} \sin\phi$."

with: $-\frac{R^2 - \rho_{spec}^2 - r^2}{\rho_{spec}^r} \geq \cos\psi_{spec} \cos\phi + \sin\psi_{spec} \sin\phi$ --

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Column 11, line 10, delete equation: " $\geq \cos \psi_{spec} \cos \phi + \sin \psi_{spec} \sin \phi$."

Column 12, line 7, replace: " $\beta'^2 = \frac{z_0^2}{z_0^2 + r^2} - \frac{2z_0 \sin \theta_0}{\sqrt{z_0^2 + r^2}} + \sin^2 \theta_0$ "

with: -- $\beta'^2 = \frac{z_0^2}{z_0^2 + r^2} - \frac{2z_0 \sin \theta_0}{\sqrt{z_0^2 + r^2}} + \sin^2 \theta_0$ --

Column 12, line 20, replace:

" $\frac{d\beta'}{dr} = \left(\frac{z_0^2}{z_0^2 + r^2} - \frac{2z_0 \sin \theta_0}{\sqrt{r^2 + z_0^2}} + \sin^2 \theta_0 \right)^{\frac{1}{2}} \left(\frac{z_0^2}{(z_0^2 + r^2)} - \frac{z_0 r \sin \theta_0}{(z_0^2 + r^2)^{(3/2)}} \right)$."

with: -- $\frac{d\beta'}{dr} = \left(\frac{z_0^2}{z_0^2 + r^2} - \frac{2z_0 \sin \theta_0}{\sqrt{r^2 + z_0^2}} + \sin^2 \theta_0 \right)^{\frac{1}{2}} \left(\frac{z_0^2}{(z_0^2 + r^2)} - \frac{z_0 r \sin \theta_0}{(z_0^2 + r^2)^{(3/2)}} \right)$ --

Column 12, line 37, replace: " $\frac{dp}{d\Omega} = \frac{1}{I_s l(r)r} \left(\frac{d\beta'}{dr} \right) \frac{dBRDF}{d\beta'}$."

with: -- $\frac{dp}{d\Omega} = \frac{1}{I_s l(r)r} \left(\frac{d\beta'}{dr} \right) \frac{dBRDF}{d\beta'}$ --

Column 13, line 63, replace: " $BRDF = \int_D \frac{dp(|\beta - \beta_0|)}{d\Omega} \sqrt{k_1} \left| \frac{\partial(\theta, \phi)}{\partial(k_1 k_2)} \right| dk_1 dk_2$."

with: -- $BRDF = \int_D \frac{dp(|\beta - \beta_0|)}{d\Omega} \sqrt{k_1} \left| \frac{\partial(\theta, \phi)}{\partial(k_1 k_2)} \right| dk_1 dk_2$ --

Column 15, line 3, replace: " $\frac{\partial \phi}{\partial k_1}$," with: -- $\frac{\partial \phi}{\partial k_2}$ --

Column 15, lines 32-33,

replace: " $\cos^{-1} (\sin \theta_1 \cos \phi_1 \sin \theta_2 \cos \phi_2 + \sin \theta_1 \sin \phi_1 \sin \theta_2 \sin \phi_2 + \cos \theta_1 \cos \theta_2) \leq \alpha$ "

with: -- $\cos^{-1} (\sin \theta_1 \cos \phi_1 \sin \theta_2 \cos \phi_2 + \sin \theta_1 \sin \phi_1 \sin \theta_2 \sin \phi_2 + \cos \theta_1 \cos \theta_2) \leq \alpha$ --

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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 16, line 37, replace: "l(r)" with -- $\ell(r)$ --

Column 16, line 45, replace: " $\geq \cos \psi_{spec} \cos \phi + \sin \psi_{spec} \sin \phi$, and"
with: -- $\geq \cos \psi_{spec} \cos \phi + \sin \psi_{spec} \sin \phi$, and--

Column 16, line 50, replace: " $\frac{dp}{d\Omega} = \frac{1}{I_s l(r)r} \left(\frac{d\beta'}{dr} \right) \frac{dBRDF}{d\beta'}$."

with: -- $\frac{dp}{d\Omega} = \frac{1}{I_s \ell(r)r} \left(\frac{d\beta'}{dr} \right) \frac{dBRDF}{d\beta'}$ --

Column 17, line 19, delete: "; and"

Column 17, line 20, replace: " $\rho_{spec}^2 = \rho_0^2 - 2\rho_0 z_0 \cos \psi_0 \tan \theta_{spec} + z_0^2 \tan^2 \theta_{spec}$ "
with: -- $\rho_{spec}^2 = \rho_0^2 - 2\rho_0 z_0 \cos \psi_0 \tan \theta_{spec} + z_0^2 \tan^2 \theta_{spec}$ --

Column 17, line 22, add: --; and-- before "(c)".

Column 17, line 30,
replace: " $\cos^{-1}(\sin \theta_1 \cos \phi_1 \sin \theta_2 \cos \phi_2 + \sin \theta_1 \sin \phi_1 \sin \theta_2 \sin \phi_2 + \cos \theta_1 \cos \theta_2) \leq \alpha$ "
with: -- $\cos^{-1}(\sin \theta_1 \cos \phi_1 \sin \theta_2 \cos \phi_2 + \sin \theta_1 \sin \phi_1 \sin \theta_2 \sin \phi_2 + \cos \theta_1 \cos \theta_2) \leq \alpha$ --

IN THE CLAIMS:

Column 21, line 15, replace:

$$\text{"BRDF} = \frac{1}{P_i} \frac{1}{\Omega_i} \int_{\Omega_i} \int_{Area} \int_{\Omega_d} \frac{d^2 P_i}{d\Omega_i dA} \frac{dp_d(\Omega_i, \Omega_d, A)}{d\Omega_d} d\Omega_i dA d\Omega_d \text{"}$$

$$\text{with: --BRDF} = \frac{1}{P_i} \frac{1}{\Omega_i} \int_{\Omega_i} \int_{Area} \int_{\Omega_d} \frac{d^2 P_i}{d\Omega_i dA} \frac{dp_d(\Omega_i, \Omega_d, A)}{d\Omega_d} d\Omega_i dA d\Omega_d \text{, --}$$

Column 21, line 29, replace "P_i is incident power of the electromagnetic radiation."
with -- P_i is the incident power of the electromagnetic radiation.--

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Column 21, line 58, remove: "for" after " $|\beta - \beta_0| = \theta_i + \theta_d$ ".

Column 21, line 59, add: --for-- before "being".

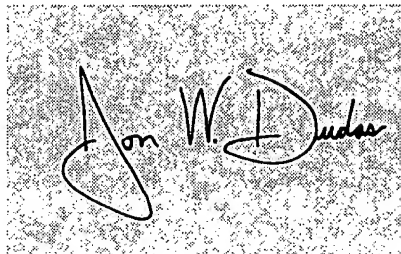
Column 21, line 65, replace: " $\text{BRDF} = \int_D \cdot \frac{dp(|\beta - \beta_0|)}{d\Omega} \sqrt{k_1} \left| \frac{\partial(\theta, \phi)}{\partial(k_1, k_2)} \right| dk_1 dk_2, "$

with: $\text{--BRDF} = \int_D \cdot \frac{dp(|\beta - \beta_0|)}{d\Omega} \sqrt{k_1} \left| \frac{\partial(\theta, \phi)}{\partial(k_1, k_2)} \right| dk_1 dk_2, \text{--}$

This certificate supersedes Certificate of Correction issued September 25, 2007.

Signed and Sealed this

Twentieth Day of November, 2007

A handwritten signature in black ink, appearing to read "Jon W. Dudas", is written over a rectangular area with a light gray, textured background.

JON W. DUDAS
Director of the United States Patent and Trademark Office